

Update on NOAA's National Weather Service (NWS)
WSR-88D Level II Data Collection and Distribution Network

Updated 20 September 2005

PURPOSE:

This summary updates Weather Surveillance Radar-1988 Doppler (WSR-88D) Level II data users, real-time and archive, on WSR-88D changes which may impact data format, data reliability, and data quality. Changes being made or planned with respect to the real-time Level II network are also presented.

CURRENT:

Open System Radar Data Acquisition (Open RDA): The first of five beta tests/installations of the Open RDA occurred on 26 August 2005 at Oklahoma City, OK. Forecasters at the Oklahoma City, OK weather forecast office indicate that the data produced by the Open RDA is good and the system has more sensitivity than the legacy RDA. The Open RDA deployment, scheduled to begin in late 2005, will be completed by September 2006. The remaining four beta sites and their scheduled installation dates follow. See the "Planned Changes" section below for the immediate impact of Open RDA on Level II users. More information on the Open RDA is available at: <http://www.orda.roc.noaa.gov/>.

Wichita, KS	Week of 26 September 2005
Fort Worth, TX	Week of 24 October 2005
Pueblo, CO	Week of 31 October 2005
Laughlin AFB, TX	Week of 31 October 2005

Fort Hood WSR-88D Level II Connection Added to Network. The Fort Hood, TX (KGRK) WSR-88D connection to the Level II Network started on 6 September 2005. The connection was added to meet NWS requirements for the Level II data from Fort Hood.

New NWS-Maintained Level II Status Monitoring Site Available: The following web site provides the status of Level II data flow to the NWS Telecommunications Operations Center: <http://weather.noaa.gov/monitor/radar2/>. The site contains a color-coded display of sites on the Level II network by NWS region. The colors help the user differentiate between sites with just a Level II outage and sites with both Level II and III outages (implying the radar is inoperable). In addition, users can click on the site of interest and view any applicable Operator Notes/Recent Free Text Messages which provide more information on the radar's status. Information on apparent data latencies is also provided.

Outages Due to Hurricane Katrina: The NWS is aware of the long period of time Level II data were not available from several WSR-88Ds in the Louisiana, Mississippi, and Florida area following the passage of Hurricane Katrina. These outages were unavoidable as the Level II data flow depended on commercial communications vendors who experienced unprecedented destruction of their infrastructure. Communication lines carrying WSR-88D products were also impacted for several days.

PLANNED CHANGES:

Level II Data Format Changes. When Open RDAs are installed, there will be changes to the format of the Level II "metadata" file at the start of each volume coverage pattern and the time stamps will be GPS

synchronized. [Note: The radar data message time stamps will be GPS synchronized. However, the LDM keys, which also include time, will continue to come from the NTP synchronized with AWIPS. In a future software release, the LDM and other radar data time stamps may be synchronized with the Open RDA GPS clock.] The degree of impact from the Open RDA change will depend on how users process the Level II data. If a user just uses the base data radials: the floating point format of SYSCAL changed; azimuths are quasi-fixed on the half-degree; there are always 360 radials; and although the interface control document (ICD) did not change, the Open RDA may report the range to the first bin as a positive number (legacy was always negative). The "RDA Redundant Channel" that appears in every message header was changed to indicate if the RDA is legacy versus Open RDA. There are also several changes to other messages like the RDA Status Message to: remove/add alarms and statuses; change the precision of the calibration correction; and to now report the software build of the ORDA. The Open Build 7.0/8 June 2005 version of the "Interface Control Document for the RDA/RPG" (Document Number 2620002c) is available at: http://www.roc.noaa.gov/ssb/cm/icd_downloads.asp. Sample data sets of the new Open RDA Level II format are available at: ftp://ftp.roc.noaa.gov/Pub/ORDA_Sample_Data/.

Additional Radar Connections. The list of sites on the network and to be added is listed at: http://www.roc.noaa.gov/NWS_Level_2/. No further DOD connections to the network are planned at this time. No FAA Level II data can be added to the network until at least spring 2007 when the required software and hardware will be installed on the FAA WSR-88D systems. There are no plans to add FAA sites at this time.

Build 8: Deployment of Radar Product Generator (RPG) Build 8 software is scheduled to begin in April 2006. The primary change in this software release that will impact Level II users is the change in the default precipitation volume coverage pattern (VCP) from VCP 21. Beginning with Build 8, sites will be allowed to change the default precipitation VCP based on agreement by the local Unit Radar Committee. Some sites may elect to not change the default precipitation VCP while others may change the default precipitation VCP seasonally or on a case-by-case basis – all with the goal of maximizing the performance of the WSR-88D to support forecast and warning operations. Software to be added in Build 8 will enable the automatic return of the radar to clear air mode when a precipitation event has ended. (Currently the switch to clear air mode requires manual intervention.) This software should reduce the bandwidth increase due to the change in default precipitation VCP. The NWS plans to provide estimates on the net change in VCP usage/bandwidth based on Build 8 later this year.

ADDITIONAL INFORMATION:

Users who use CODE (Common Operations and Development Environment) to process level 2 data should update to Build 7, which is available at <http://weather.gov/code88d/>.

The Radar Operations Center (ROC) has a URL (<http://www.roc.noaa.gov/ops/ssm.asp>) for users to obtain:

1. A list of sites and which RPG software build the site is using, and
2. A list of sites and which volume coverage pattern the site is using, during the last automated hourly ROC call to the RPG.

Additional information about the Level II network is available at:
http://www.roc.noaa.gov/NWS_Level_2/.